

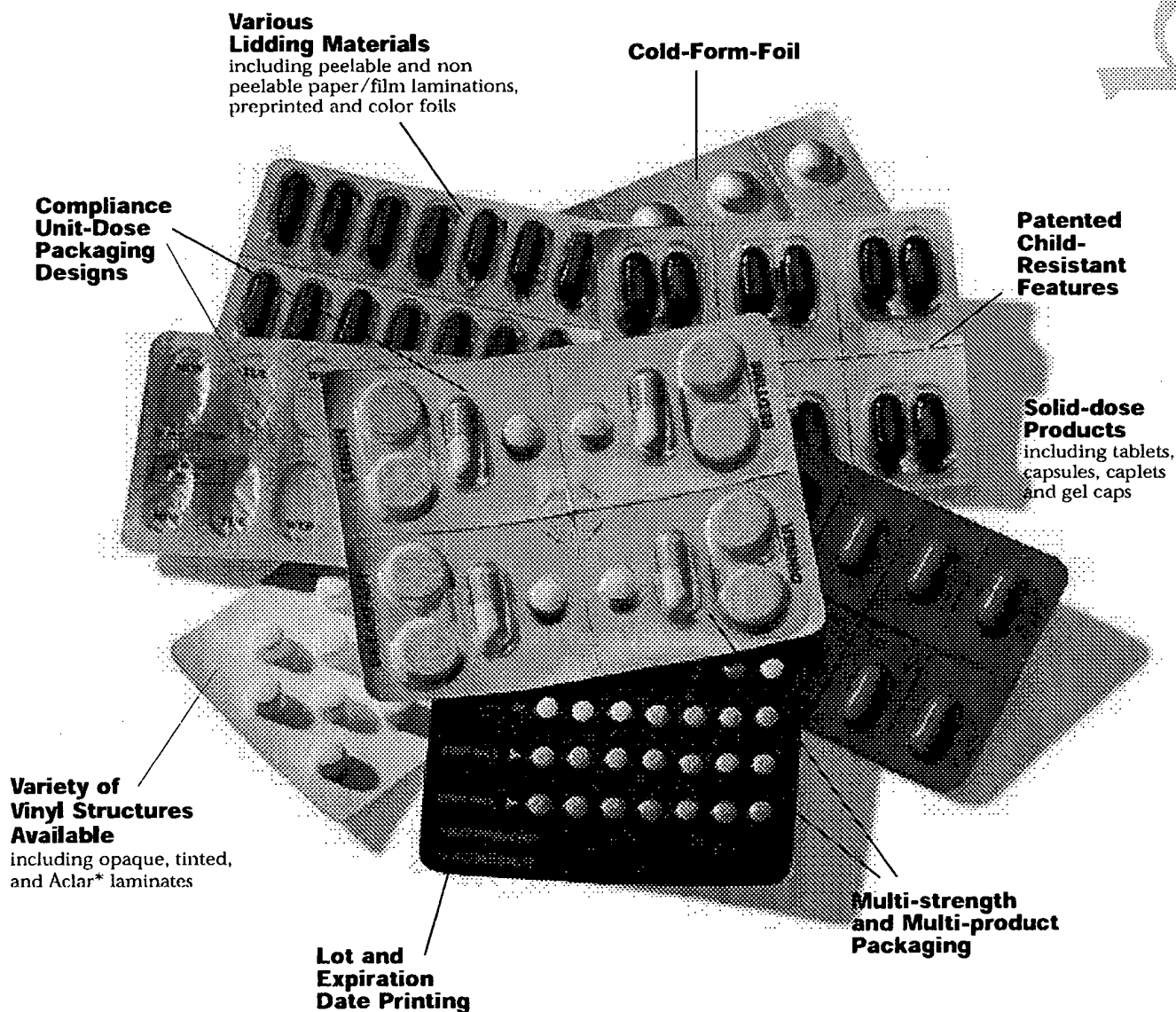


## Blister Packaging Excellence

Sharp has been a leader in blister packaging for pharmaceutical and personal care products for more than 25 years. Experience and expertise define our blister packaging capabilities with the largest assembly of Uhlmann forming equipment in the industry. The blister formats range from standard PVC and foil combinations to high barrier laminates as well as aluminum/aluminum blisters.

Sharp offers turnkey services to include package design, foil printing, in-house tooling design and fabrication, high-speed blister packaging and custom carton designs and converting. With a variety of blister options, Sharp can handle your range of volumes from clinical production to commercial production with scheduling flexibility. Trust **Sharp** to be your single source for excellence in blistering.

blisters



\*Aclar is a registered trademark of Honeywell.

# Blister Packaging Overview

## Common Types of Blister Packages

Sharp can produce a variety of blister packages using a multitude of materials in custom-designed formats. Whether it's a standard vinyl sealed to foil lidding or aluminum to aluminum -- also known as cold-form-foil -- Sharp can produce the highest quality package in the industry. Blister packages can contain multiple products or multi-strength doses, two tablets per cavity or be oriented to achieve the optimal package size.

## Barrier Resistance

The type of material used for blister packaging depends upon the desired barrier property required. It is important to know the moisture vapor transmission rate (MVTR) required as well as the oxygen transmission rate (OTR) for the product being packaged. Light sensitivity is also an important factor in material selection. This information will enable the best and most cost-effective



materials to be used for the package. When packaging ethical/prescription products, this is determined and specified in the new drug application (NDA) submitted to the FDA. The chart is an elementary example of barrier property in relationship to material specified

## Blister Materials

There are a variety of materials that can be used to form the cavity. These can range from a single layer PVC to a two layer PVDC and a three layer Aclar\* lamination, which is available in many different grades depending on the desired barrier. When light sensitivity is an issue, most materials can be purchased tinted white opaque, amber and green.

## Foil Lidding Materials

The barrier and function demand for the blister package usually determine the lidding material. This is typically a foil structure that seals to forming material. The following materials offer

Material Type	Function
Hard tempered foil/Heat seal coating	Push-through foil
Paper/Foil/Heat seal coating	Push-through/peelable foil *
Paper/Film/Foil/Heat seal coating	Peelable foil *
Paper/Release adhesive foil	Peel-push foil
Paper/Film/Foil	Peel-push foil

\*Child resistant format

properties that can aid in package stability, child resistance, tamper evidence and compliance. Lidding materials can be printed with product labeling or other related information. Sharp has the capability of printing one-color foil lidding material in-house.

## Packaging Equipment

Sharp offers two methods for producing blister packages. For smaller quantities, the Sharp semi-automated process provides a cost-effective source for formats used in carded blisters and hospital unit dose (HUD). These are produced using a large format pre-formed blister sheet that is manually flooded with product, visually inspected and then the lidding material is cut and sealed to the vinyl. During the sealing process, units are also die-cut to specified format. The second option is a fully-automated process where the blister cavity is formed, filled (using either a dedicated feeder or a flood feed system) and the lidding material is sealed and trimmed in-line. The majority of blister forming equipment at Sharp is manufactured by Uhlmann, considered to be the "best in class". An automatic cartoner can be placed at the end of the line for fast, high-volume packaging output.

## Tooling

Sharp offers in-house tooling design and manufacturing of blister tooling. Sharp engineers design tooling using CAD/CAM systems to assure accurate and custom fit of the product in the cavity. Our in-house milling machines are capable of creating 3D milling for both male and female style cavities for vacuum and pressure forming.

## Child Resistant Features

Sharp has a patented child resistant feature known as slit-notch where the individual cavity section is separated from the blister and opened by tearing at the notch. Other child-resistant openings are also available.

## Quality Controls

Sharp uses machine vision equipment to assure product placement and quality throughout the

process. Our dedicated quality assurance/quality control personnel assure strict cGMP compliance to SOPs and FDA regulations. Accurate, detailed batch record documentation accompanies every lot produced by Sharp with supervisors and inspectors monitoring the process.

## Other Packaging Options

In addition to blistering, Sharp offers a full range of packaging options including carded blister packages, pouches, bottles, kit packaging, and other specialty services.

For more information

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